

REMARKS

At the outset, Applicants thank the Examiner for his time and helpful comments during a telephonic interview on October 31, 2002.

Status of the Claims

Claims 10-20 and 22-24 are pending. In the instant Response, claims 10-16 and 24 are amended. Thus, after entry of these amendments, claims 10-20 and 22-24 are presented for reconsideration.

Pursuant to the Office Action, claims 10-15 are rejected under 35 U.S.C. §112, second paragraph. Claims 10-20, 23, and 24 are rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,023,540 to Walt *et al.* (hereinafter “Walt”). Applicants respectfully traverse all outstanding objections and rejections of the claims.

Support for the Claim Amendments

Support for the claim amendments can be found throughout the specification. In particular, support can be found, *inter alia*, at page 5, lines 2-14; and page 9, lines 25-28. Accordingly, no new matter is introduced by the instant amendment.

Issues under 35 U.S.C. §112, second paragraph

Claims 10-15 are rejected under 35 U.S.C. §112, second paragraph for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

It is alleged that as a result of the cancellation of claims 7-9, several claims depend from canceled claims, rendering them vague and indefinite. Applicants have amended the claims to clarify the scope of the claims. Therefore, in light of the amendment, Applicants respectfully

request reconsideration and withdrawal of the rejection based upon 35 U.S.C. §112, second paragraph.

Issues under 35 U.S.C. §102

Claims 10-20, 23, and 24 remain rejected under 35 U.S.C. §102(e) for allegedly being anticipated by Walt.

Applicants have amended claims 16 and 24, and consequently all the claims that depend therefrom, to clarify that the step of obtaining a value that represents the degree of hybridization between the probe at each different and separate predetermined position and the sample is obtained by dividing the difference between the amount of the probe and the amount of the sample hybridized to the probe by the amount of the probe.

Walt, in contrast, does not teach obtaining such a value. Walt "normalizes" the sample by removing background signal. It does not teach or suggest obtaining a value that represents the degree of hybridization between the probes and the sample. Because Walt does not teach each and every limitation of the claimed invention, Applicants respectfully request reconsideration and withdrawal of the rejection based upon 35 U.S.C. §102(e) as applied to the pending claims.

Furthermore, Applicants submit that claim 22 is no longer dependent on a rejected claim. Accordingly, Applicants respectfully submit that all claims are in condition for allowance.

If, in the Examiner's opinion, a telephonic interview would expedite the favorable prosecution of the present application, the undersigned attorney would welcome the opportunity to discuss any outstanding issues and to work with the Examiner toward placing the application in condition for allowance.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant : Yurino, et al.
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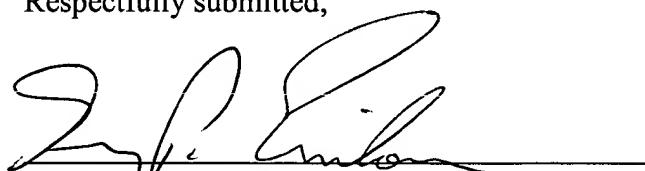
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CONCLUSION

Applicants respectfully submit that the pending claims 10-20, and 22-24 are in condition for allowance. Applicants believe that no additional fees are necessitated by the present Response. However, in the event any such fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 06-1050.

Respectfully submitted,

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Version with markings to show changes made

In the claims:

Claims 10-16 and 24 have been amended as follows:

10. (Amended) The method of claim 16 [8] or claim 24 [9], wherein the amount of the probe is detected prior to the contacting [hybridization] step.
11. (Amended) The method of claim 16 [8] or claim 24 [9], wherein the amount of the sample nucleic acid hybridized to the probe is detected after the completion of the contacting step [hybridization].
12. (Amended) The method of claim 16 [8] or claim 24 [9], wherein both the amount of the probe and the amount of the sample hybridized to the probe are detected after the completion of the contacting step [hybridization].
13. (Amended) The method of claim 16 [8] or claim 24 [9], wherein the sample nucleic acid and the probe are labeled with different labeling materials.
14. (Amended) The method of claim 16 [8] or claim 24 [9], wherein the value [produced by normalizing the difference between the amount of the probe and the amount of the sample nucleic acid hybridized to the probe with the amount of the probe] is indicated on a display.
15. (Amended) The method of claim 16 [8] or claim 24 [9], wherein the substrate on which each of a plurality of types of probes are immobilized at a given position comprises a biochip.
16. (Twice Amended) A method for detecting a degree of hybridization between a probe and a sample comprising a biopolymer, the method comprising

- (a) providing a substrate on which each of a plurality of types of probes is separately immobilized on each different and separate predetermined position, wherein the probes are labeled with a first detectable label;
- (b) providing a sample comprising a biopolymer, wherein the biopolymer is labeled with a second detectable label;
- (c) contacting the sample with the probe;
- (d) detecting an amount of the probe at each different and separate predetermined position of the substrate by detecting the first detectable label;
- (e) detecting an amount of the sample biopolymer hybridized [bound] to the probe at each different and separate predetermined position of the substrate by detecting the second detectable label; and
- (f) producing a value representing the degree of hybridization between the [a] probe at each different and separate predetermined and the [a] sample biopolymer by dividing [normalizing] the difference between the amount of the probe detected at each different and separate predetermined position and the amount of the sample biopolymer hybridized to the probe by [with] the amount of the probe.

24. (Twice Amended) A method for detecting a degree of hybridization between an oligonucleotide probe immobilized onto an array and a sample nucleic acid, the method comprising

- (a) providing a substrate on which each of a plurality of types of oligonucleotide probes is separately immobilized on each different and separate predetermined position to form an array, wherein the oligonucleotide probes are labeled with a first detectable label;
- (b) providing a sample comprising a nucleic acid, wherein the nucleic acid is labeled with a second detectable label;
- (c) contacting the sample with the probe;
- (d) detecting an amount of the probe at each different and separate predetermined position of the substrate by detecting the first detectable label;

(e) detecting an amount of the sample nucleic acid hybridized to the probe at each different and separate predetermined position of the substrate by detecting the second detectable label; and

(f) producing a value representing the degree of hybridization between the [a] probe at each different and separate predetermined position and a sample by dividing [normalizing] the difference between the amount of the probe detected at each different and separate predetermined position and the amount of the sample nucleic acid hybridized to the probe by [with] the amount of the probe.